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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MENON, KRISHNAN S

ART UNIT

PAPER NUMBER

1723

DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/806,790

Applicant(s)

BRATTON ET AL.

Examiner

Krishnan S Menon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 16-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☒ Interview Summary (PTO-413) Paper No(s) 17.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claims 16-26 are pending in this application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 659 469 A2.

EP (469) discloses a tubular monolith membrane having 0.5 - 10 micron average porosity (page 2: 51- 58), plurality of conduits, zeolites formed inside, ID 2-12 mm, and OD up to 10 mm and 30-100 mm (page 3: 3-7); monolith from alumina, zirconia (page 2:50-58);

Claims 20-23: EP (469) discloses the inner surface of tubes having zeolite crystals grown on them by contacting with growth medium after pre-treating with zeolite initiator such as zeolite particles (example 1 and page 3: 11-20)

EP (469) discloses ODs of 10 mm and 30-100 mm depending upon use, and it is well within its scope to have OD there between. In *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. In *re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) (The court held that the configuration of the claimed disposable plastic nursing container was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed container was significant.).

2. Claims 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP (469) in view of WO 93/19840.

EP (469) discloses the tubular monolith membrane with a zeolite coating inside the tubes by crystal growth after coating with an initiator like zeolite powder. However, the primary reference fails to disclose silicic acids as the initiator for crystal growth. WO (840) teaches use of silicic acids as initiators (page 3). One of ordinary skill in the art at the time of invention could chose silicic acid as the initiator for the zeolite crystal growth in a zeolite membrane based on the teachings of WO (840) in place of the zeolite particle initiator as taught by EP (469), to aid in the binding of the structure (page 3, lines 5-30).

3. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP (469) in view of WO 97/18886).

EP (469) discloses a zeolite membrane over a monolith tubular support by suspending powders of initiator in a liquid, contacting the support with the suspension, and then contacting the support with the growth medium for zeolite growth (page 3 11-20, working examples). However, the primary reference fails to teach the use of surface modifying agent treatment after the formation of the zeolite membrane. WO (886) teaches the use of silicic acids and alkyl silicates for such a surface treatment and cross-linking of zeolite membranes formed inside porous tubes. One of ordinary skill in the art at the time of the invention could chose cross-linking agents like silicic acids and alkyl silicates as taught by WO (886) to treat and thus augment the membrane as made by the process described by EP (469); the membrane formed by the EP (469) process being equivalent and having similar function to the membrane formed by the process in WO (886).

Response to Arguments

Applicant's arguments regarding claims 16-26 are not persuasive for the following reasons:

Applicant argues that the reference has the tubular monolith conduits having outer diameters up to 10 mm for the pipe and 30-100 mm for the cylinder, whereas the applicant has the outer diameter as 20-25 mm. This point was also stressed in a recent interview of the applicant's representative with the examiner. This argument implies that the only difference between the claimed invention and the prior art is the outside diameter of the cylinder, and, from the data presented in the specification, the membrane does not perform differently than that of the ref EP (469). In *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir.

1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) (The court held that the configuration of the claimed disposable plastic nursing container was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed container was significant.). Re the applicant's argument that the ref does not anticipate 20-25 mm, it may please be noted that the rejection is based on obviousness.

The examiner agrees that the reference suggests outer diameters of 10 mm for the pipe and 30-100 mm for the cylinder for "pervaporation or vapor permeation". However, this is not the only parameter the reference indicated, and definitely not the only application intended for the membrane. The reference states there is no restriction imposed on the shape of the support, teaches wall thickness of the conduits from 0.2-several mm and ID as 2-12 mm, and has plurality of holes. The reference does not state that the cylinder OD cannot be less than 30 mm. Now, if the wall thickness is 0.2 mm and inside diameter is 5-9 mm ID would give 4 or more holes with an OD of 20 mm, which the reference teaches. One of ordinary skill in the art would also look at all the overlapping dimensions the reference teaches.

Re the argument that the dimensions chosen in claim 16 are specifically to improve performance of the membrane structure, and that from the experimental results the membrane structure with claimed dimensions provide improved results: The examiner fails to see any

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superior performance in the only data provided at page 10 of the specification. The data shows permeability of 2% IPA solution at 21 Kg/m²/day. No separation factor is provided. This when compared, the reference has 17-50 Kg/m²/day at separation factors >10,000 (table I). See table III as well. In the interview, the applicant argued that the superior performance is the significant reduction in cost of the 4-channel cylindrical membrane when compared to the single bore membrane, as disclosed in the specification page 10 of the application, and that the applicant's 4-channel cost data should be compared with the single bore membrane data of the ref EP (469), since EP does not disclose a similar multi-channel membrane data. It may please be noted that this comparison is not relevant, since the reference teaches multi-channel designs, and if the multi-channel design gives lower cost for the applicant, inherently, multi-channel membrane of the ref also would be of lower cost.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 703-305-5999.

The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 703-308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Krishnan Menon
Patent Examiner


W. L. WALKER
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